

REMARKS

In the Office Action, claims 1-3, 5-23, and 25-71 were rejected. By the present Response, claims 1, 21, 36, 53, and 56 have been amended. Claims 6-9, 54, and 55 have been canceled, and new claims 85-88 have been added. No new matter has been added. Upon entry of the amendments, claims 1-3, 5, 10-23, 25-53, and 56-88 will remain pending in the present patent application. In view of the foregoing amendments and following remarks, Applicants respectfully request allowance of all pending claims.

Claim Rejections under 35 U.S.C. § 103(a)

The Examiner rejected claims 1-3, 5-23, and 25-71 under 35 U.S.C. § 103(a) as rendered obvious by Heiserholt et al. (U.S. Patent No. 6,198, 287, hereinafter "Heiserholt") in view of Opoczynski (U.S. Patent No. 5,453,737, hereinafter "Opoczynski"), or in view of various additional references. The Applicants respectfully traverse these rejections.

Legal Precedent

First, the burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (PTO Bd. App. 1979). Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention absent some teaching or suggestion supporting the combination. *ACS Hospital Systems, Inc. v. Montefiore Hospital*, 732 F.2d 1572, 1577, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984). The mere fact that references can be combined or modified does not render the resultant combination obvious unless the prior art also suggests the desirability of the combination. *In re Mills*, 916 F.2d 680, 16 U.S.P.Q.2d. 1430 (Fed. Cir. 1990). Accordingly, to establish a *prima facie* case, the Examiner must not only show that the combination includes *all* of the claimed elements, but also a convincing line of reason as to why one of ordinary skill in the art would have found the claimed invention

to have been obvious in light of the teachings of the references. *Ex parte Clapp*, 227 U.S.P.Q. 972 (B.P.A.I. 1985). The Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). Moreover, a statement that the proposed modification would have been “well within the ordinary skill of the art” based on individual knowledge of the claimed elements cannot be relied upon to establish a *prima facie* case of obviousness without some *objective reason to combine* the teachings of the references. *Ex parte Levengood*, 28 U.S.P.Q.2d 1300 (Bd. Pat. App. & Inter. 1993); *In re Kotzab*, 217 F.3d 1365, 1371, 55 U.S.P.Q.2d. 1313, 1318 (Fed. Cir. 2000); *Al-Site Corp. v. VSI Int'l Inc.*, 174 F.3d 1308, 50 U.S.P.Q.2d. 1161 (Fed. Cir. 1999).

Second, when prior art references require a selected combination to render obvious a subsequent invention, there must be some reason for the combination other than the hindsight gained from the invention itself, i.e., something in the prior art as a whole must suggest the desirability, and thus the obviousness, of making the combination. *Uniroyal Inc. v. Rudkin-Wiley Corp.*, 837 F.2d 1044, 5 U.S.P.Q.2d 1434 (Fed. Cir. 1988). One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention. *In re Fine*, 837 F.2d 1071, 5 U.S.P.Q.2d 1596 (Fed. Cir. 1988).

Third, it is improper to combine references where the references teach away from their combination. *In re Grasselli*, 713 F.2d 731, 743, 218 U.S.P.Q. 769, 779 (Fed. Cir. 1983); M.P.E.P. § 2145. Moreover, if the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. *In re Ratti*, 270 F.2d 810, 123 U.S.P.Q. 349 (CCPA 1959); see M.P.E.P. § 2143.01.

Improper Combination – References Teach Away From One Another

The Examiner rejected independent claims 1, 21, 36, 53, and 56 under 35 U.S.C. § 103(a) as rendered obvious by Heiserholt in view of Opoczynski. Applicants stress that the cited references teach away from one another and, therefore, are not properly combinable. *See In re Grasselli*, 713 F.2d 731 at 743. In fact, the cited references teach contrastingly different intended purposes and principles of operation, which would change if the cited references were combined as suggested by the Examiner. As summarized above, a proposed modification or combination of references is entirely improper and insufficient to support a *prima facie* case of obviousness, where the proposed modification or combination would change the principle of operation of the cited reference or render the cited reference unsatisfactory for its intended purpose.

The primary reference teaches a principle of operation of a diagnostic magnetic resonance apparatus having components arranged inside a high frequency shielded room and one other component outside the high frequency room. *See* Heiserholt, Abstract. Further, an optical bus line is used to connect the components inside the high frequency room (*e.g.*, patient bed) to the component outside the high frequency room via an electro-optical interface. *See* Heiserholt, column 3, lines 36-39. Thus, the principle of operation of the primary reference requires a double light waveguide that is configured as one single continuous optical loop in order to flow the data along the light guide segments. *See* Heiserholt, column 4, lines 13-17. Heiserholt further states that the components must be *connected in series* in order to allow communication between the two neighboring slave nodes. *See* Heiserholt, column 4, lines 24-26. In other words, there is no suggestion for an independent connection between the master node and slave nodes because of the *continuous* configuration of the *optical bus*.

In contrast, the secondary reference teaches a principle of operation for a plurality of kill signals generated by the master controller and applied over a *kill line* to each slave

node. *See* Opoczynski, Abstract. In other words, the master controller “kills” the slave unit with the associated kill line via disabling the slave and removing it from the bus. *See id.* at column 3, lines 9-14. Thus, the principle of operation of the secondary reference requires that the slave node be removed from the bus via the kill line.

In view of these contrasting different principles of operation, the Examiner’s proposed combination of the primary and secondary references is absolutely improper and cannot stand. The Examiner would use the independent kill lines in Opoczynski to remove imaging components (*i.e.*, slave nodes) that are required to complete the optical circuit of Heiserholt. In other words, the result would be an imaging system that is disabled by the removal of one its slave nodes from the optical bus. Heiserholt by no means suggest adding an independent line to each of the slave nodes, nor would it, because of this undesirable result. In view of these incompatible principles of operation, the cited references cannot be combined and the Examiner’s rejection is improper.

For these reasons, Applicants respectfully request withdrawal of the foregoing combination and the corresponding rejections under 35 U.S.C. § 103.

Claim Features Omitted from Cited References

Additionally, the independent claims recite, *inter alia*, in generally similar language, a medical imaging system providing a safety loop back communications link between a master node and at least one slave node. For example, independent claim 1 recites, *inter alia*, “a slave node for each of a plurality of components of the medical imaging system, wherein the plurality of components of the medical imaging system comprise image acquisition components, image processing components, user interaction components, monitoring components, or a combination thereof” and “at least one safety loopback communications link between the master node and at least one slave node.”

In the Office Action, the Examiner specifically stated:

Heiserholt is further silent or deficient to a safety loopback communications link being independent from the dual-conductor linkage and communicating signals separately from signals communicated via the dual conductor linkage.

Opoczynski teaches the above limitation as shown in figure 1 with respect to kill lines 16, request lines 18 and A/B select lines 22. In particular, all three lines are dedicated and separate from the bus. Opoczynski further includes a common serial bus as Data bus A and B (i.e., a dual conductor linkage).

The examiner proposes to modify Heiserholt by further clarifying that it is well known in the art prior to applicant's invention to further include a separate safety loopback communication link.

Thus the examiner notes that it would have been obvious to one skilled in the art prior to applicant's invention to include the above limitation. In particular, one skilled in the art would be motivated to include a separate safety loopback communications link for the purpose of transporting important control signals. As such, Opoczynski teaches the above motivation at e.g., column 2 of the reference.

Office Action mailed October 30, 2006, pages 3-4 (emphasis added).

The Examiner's rejection is flawed because the cited references do not teach or suggest, alone or in hypothetical combination, the safety loopback communications link as recited by independent claims 1, 21, 36, 53, and 56. Instead, Opoczynski discloses a "kill line" between a master and slave node in order to disconnect the slave node from the data bus. *See* Opoczynski, Abstract. These "kill lines" do not have the same functionality as the safety loopback communications link. As disclosed, the master node and various slave node or nodes may be coupled in a variety of different manners, and may use different communication modules as discussed in paragraphs 58 and 66 of the application.

Fig. 7 is a diagram illustrating exemplary components of the master and slave nodes described above. *As illustrated, the master and slave nodes have a variety of communications, guarding, messaging, and command management modules to increase safety and efficiency of the imaging system*

10 disposed on the network 200. For example, the master node 202 may comprise a uniform communications module 214, a routine operational guarding module 216, a code error guarding module 218, a message integrity guarding module 220, an emergency notification module 222, and a control/command management module 224. Similarly, one or more of the slave nodes 204-212 may comprise a uniform communications module 226, a routine operational guarding module 228, a code error guarding module 230, a message integrity guarding module 232, an emergency notification module 234, a control/command management module 236, an asynchronous process data module 238, and a synchronous process data module 240. The foregoing modules 214-240 may comprise a variety of hardware and software, which may be integral or add-on components of the imaging system 10 and its components (e.g., subsystems and peripherals).

Application, paragraph 58. (emphasis added.)

The techniques described above with reference to Figs. 6 and 7 are applicable to a wide variety of medical diagnostic and imaging systems, including various networks of medical equipment at one or more sites and for one or more medical modalities. Fig. 8 is a diagram illustrating an exemplary medical system network 300 for the imaging system 10 illustrated by Fig. 1. As illustrated, the medical system network 300 communicatively couples various components (e.g., subsystems or peripherals) of the imaging system 10 via a dual-conductor assembly 302, which may comprise a CAN high conductor 304 and a CAN low conductor 306. *Although not illustrated, the various components may be coupled in series, in parallel, or in a combination of series and parallel connections.* In the illustrated embodiment, the medical system network 300 has a master node 308 and a plurality of slave nodes, such as slave nodes 310-326, which are distributed throughout the imaging system 10 at components within subsystems 12, 14, and 16. For example, the data acquisition system 12 has slave nodes 310, 312, and 314, the control system 14 has slave nodes 316, 318, and 320, and the interface system 16 has slave nodes 322, 324, and 326. These slave nodes 310-326 may represent any desired medical components, peripherals, or subsystems, such as the components illustrated by Figs. 1 and 4.

Application, paragraph 66. (emphasis added.)

Thus, the safety loopback communications link may communicate a variety of signals generated by the different modules (*e.g.*, uniform communications module, routine operational guarding module, code error guarding module, message integrity guarding module, emergency notification module, control/command management module, asynchronous process data module, or synchronous process data module). Further, the safety loopback communications link serves to communicate these signals separately from signals communicated via the dual conductor linkage. Opoczynski does not disclose elements that provide this functionality, and thus, does not disclose the safety loopback communications link element.

After careful review of the cited art, Applicants stress that none of the cited art obviates the deficiencies of Heiserholt. As discussed above, Opoczynski fails to teach or suggest the claimed safety loopback communications link as proposed by the Examiner, and the remaining references are also deficient. For these reasons, among others, Applicants respectfully request withdrawal of the rejections under 35 U.S.C. § 103(a).

Improper Combination - Lack of Objective Evidence of Reasons to Combine

In addition, the Examiner has not shown the requisite motivation or suggestion to modify or combine the cited references to reach the present claims. As summarized above, the Examiner must provide objective evidence, rather than subjective belief and unknown authority, of the requisite motivation or suggestion to combine or modify the cited references. *In re Lee*, 61 U.S.P.Q.2d. 1430 (Fed. Cir. 2002). In the present rejection, the Examiner combined the cited references based on the *conclusory and subjective statement* that it would have been obvious “to include a separate safety loopback communications link for the purpose of transporting important control signals.” See Office Action mailed October 30, 2006, pages 3-4.

Applicants note that the independent claims are directed to a medical imaging system having a plurality of components that may include different functions or modules. Transporting important control signals between each of these components is but one aspect of the recited claims and may be done via a dual conductor linkage, as recited in the claims. Moreover, the need to transport important control signals by no means suggests that it would have been obvious to include a second independent communications link between the components and the master node. Thus, the Examiner has failed to provide objective evidence of the requisite motivation or suggestion to modify or combine the cited references. As discussed above, Heiserholt teaches away from such a suggestion. Further, Opoczynski is directed towards a telecommunications system that is unrelated to a medical imaging system all together. Applicants believe that the Examiner is using hindsight reconstruction to pick and choose among isolated disclosures in the prior art to deprecate the claimed invention.

Accordingly, Applicants challenge the Examiner to produce *objective evidence* of the requisite motivation or suggestion to combine the cited references, or remove the foregoing rejection under 35 U.S.C. § 103.

Request Evidence to Support Official Notice

Essentially, the Examiner has taken Official Notice of facts outside of the record that the Examiner apparently believes are capable of demonstration as being “well-known” in the art. Therefore, in accordance with M.P.E.P. § 2144.03, Applicants hereby seasonably traverse and challenge the Examiner’s use of Official Notice. Specifically, in the rejection of claims 1, 2-3, 6-10, 21-23, 36-41, 43, and 53-55. *See* Office Action page 3. Applicants respectfully request that the Examiner produce evidence in support of the Examiner’s position as soon as practicable during prosecution and that the Examiner add a reference to the rejection in the next Official Action. If the Examiner finds such a reference and applies it in combination with the presently cited references, Applicants further request that the Examiner specifically identify the portion of the newly cited

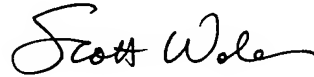
reference that discloses the allegedly "well known" elements of the instant claim, as discussed above, or withdraw the rejection.

Conclusion

In view of the remarks and amendments set forth above, Applicants respectfully request allowance of the pending claims. If the Examiner believes that a telephonic interview will help speed this application toward issuance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,

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